

Applicants disclose a digital subscriber line (DSL) communicating system using a time compression modulation ISDN (TCM ISDN) transmission scheme in which DSL transceivers are influenced by near-end crosstalk (NEXT) and far-end cross talk (FEXT) during different periods of a transmission cycle. In order to accommodate these influences, the transceivers apply a DMT modulation scheme in which two bitmaps are employed. A first bitmap is employed during a NEXT period, and a second bitmap is employed during the FEXT period. The second bitmap takes advantage of transmission characteristics during the FEXT period allowing for transmission of a greater number of bits than during the NEXT period. Applicants' system uses a sliding window scheme in which any symbol to be transmitted during an interval that includes at least a portion of a NEXT period is transmitted using the first bitmap.

Applicant's invention, as claimed for example in independent claims 34 and 35, discloses a specific training method for a DSL transceiver including means for generating a sliding window based on a timing signal representative of the NEXT and FEXT periods, and means for discriminating whether a transmitted symbol belongs to and was transmitted using a bitmap associated with either the NEXT period or the FEXT period.

More specifically, for example as claimed in independent claim 1, Applicants' transceiver includes a sliding window generating unit, for generating a sliding window based on a timing signal reflective of the NEXT and FEXT periods, and a sliding window transmitting unit, where the sliding window generating unit further includes a hyperframe counter for periodically counting a predetermined number of symbols constituting a hyperframe, and a decoder for discriminating based on this counter value whether a transmitted symbol belongs to a NEXT period or FEXT period at the receiving side. In addition, for example as claimed in independent claims 17 – 20 and 31 – 33, the DSL transceiver includes means for detecting the phase of a carrier signal transmitting

the symbol in order to determine whether it belongs to the NEXT period or to the FEXT period.

 Tyrell discloses a synchronous optical transmission (SONET) system comprising fiber transmission systems, terminal multiplexers and add/drop multiplexers. The terminal multiplexers include a low-speed DS-1 interface for interfacing to a high-speed STS-1 signal.

 Unlike Applicants' claimed invention, Tyrell does not disclose a DSL communicating system. The Examiner suggests that Applicants recite their DSL system only in the preambles of their associated claims, and as a result, these recitations should not receive any patentable weight. Applicants respectfully disagree.

 Applicants' recitation of a DSL communicating system in claims 1, 17 – 19 and 34 – 35 does not merely represent an intended use of the recited structure. Rather, it is within the context of a DSL communicating system that the components as recited in claims 1, 17 – 19 and 34 – 35 must be operated in order to produce an operative result. For example, it is within the context of a DSL communicating system that digital symbols may be sensibly constructed as a continuously transmitted series of modulated symbols comprising a hyperframe, subject to the effects of near-end cross-talk and far-end cross talk when transmitted across a communication line. In any event, it is difficult to envision how this structure could be usefully applied to the SONET system of Tyrell. By reciting a DSL system, the preamble "gives life, meaning and vitality" to these claims, and therefore should be construed together with the remaining limitations of each claim. MPEP § 2111.02.

 Tyrell fails to disclose Applicants' claimed means for generating a sliding window based on a timing signal representing periodical noise duration (NEXT and FEXT period durations) together with means for discriminating the kind of durations

based on a status of the sliding window, as claimed in Applicants' independent claims 34 and 35.

As claimed in Applicants' independent claim 1, Tyrell fails to disclose a hyperframe counter for periodically counting a predetermined number of symbols and a decoder for discriminating whether a symbol belongs to a FEXT period or NEXT period based on a hyperframe counter value. Applicants' continue to disagree with the Examiner's characterization equating SONET channels with a DSL hyperframe. There is no disclosure in Tyrell or conventionally understood definition for hyperframe that comports with this characterization.

As claimed in Applicants' independent claims 17 – 20 and 31 – 33, Tyrell further fails to disclose detecting the phase of a carrier signal in order to recognize whether an associated symbol belongs to a NEXT period or to a FEXT period. Applicants' respectfully disagree with the Examiner's characterization analogizing alternating Barker codes in digital frames with carrier signal phase. For example, as claimed in Applicants' claim 17, there is no disclosure in Tyrell indicating detection of a phase of a carrier signal as an output of a Fast Fourier Transform of the carrier signal.

In summary, Applicants submit that Tyrell fails to disclose Applicants' a) means for generating a sliding window based on a timing signal representing periodical noise duration, b) means for discriminating durations based on the status of the sliding window, c) hyperframe counter, d) decoder for discriminating whether a symbol belongs to a NEXT period or a FEXT period based on a hyperframe counter value, and e) detecting the phase of an associated carrier signal in order to determine whether a symbol belongs to a NEXT or FEXT period. Moreover, in the context of a SONET system as disclosed by Tyrell, there is simply no motivation to distinguish FEXT and NEXT periods in the manner claimed by Applicants in order to operate the SONET system

Accordingly, Applicants respectfully submit that independent claims 1, 17 – 20, 31– 35 are not anticipated by Tyrell. As claims 2 – 16 and 21 - 30 depend directly from these allowable independent claims, Applicants respectfully submit that claims 2 – 16 and 21 - 30 are allowable for at least this reason.

CONCLUSION

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 1 – 35, which include independent claims 1, 17 – 20 and 31 – 35, and the claims that depend therefrom, stand in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, he is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,



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